

CLAIMS:

1. A training idler roller assembly comprising an idler roller unit (6) that is adapted to be operatively mounted relative to a belt conveyor (2) to extend transversely relative thereto and to support a region of the belt in a manner such that lateral drift of the belt from a central desired position on the idler roller unit towards one or other end (10) thereof (side edge of the conveyor belt) causes the idler roller unit to slew in a plane generally parallel to that of the conveyor belt to move said one or other end in the general direction of travel of the conveyor belt so as to guide the belt to return to the said central desired position, and wherein an idler roller unit is composed of one or more idler rollers (1, 26, 40) mounted for free rotation on one or more axles (4, 27, 41) with the idler roller unit having a suspension formation (13, 42) associated with each end thereof whereby the end of the idler roller unit may be supported relative to a conveyor structure, the training idler roller assembly being characterized in that the suspension formation is, in each case, supported at an operatively lower end of a downwardly extending support arrangement (16, 43, 49) that is attached to the conveyor structure (19, 22, 47, 52) at a position above the idler roller and conveyor belt supported thereby.
2. A training idler roller assembly as claimed in claim 1 in which the downwardly extending support arrangement is in the form of a separate pendulous arm (16, 20) at each end of the idler roller unit with the two pendulous arms being pivotally supported at or towards their operatively upper ends by the conveyor structure (19, 22) so that each is movable in a generally upright plane extending in the general direction of travel of the conveyor, the attachment of the idler roller unit to the conveyor structure by way of the pendulous arms being articulated at one or other position to a necessary extent to permit slewing of the idler roller unit relative to the conveyor structure.

3. A training idler roller assembly as claimed in claim 2 in which the pendulous arm in each case is a plate pivotally mounted at its upper end (18) so as to be rotatable in a generally vertical plane extending in the general direction of travel of the conveyor belt in which case the attachment of the idler roller unit to the arm is articulated to said necessary extent.
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4. A training idler roller assembly as claimed in either one of claims 2 or 3 in which the idler roller unit has an axle exposed at each end of the unit
10 and configured to be supported in an accommodating aperture (15) in the lower end region of a pendulous supporting arm.
5. A training idler roller assembly as claimed in claim 4 in which the axle has a pair of opposite, parallel and operatively generally vertical flat
15 surfaces (13) formed in an outer right circular cylindrical surface of a circular cross-sectioned axle in which case cooperating edges (14) of the accommodating aperture (15) cooperate with the flat surfaces to hold the associated end of the idler roller unit axially captive relative to the pendulous arm with a degree of play being provided to enable the
20 necessary movement of the axle relative to the pendulous arm to take place in articulated manner.
6. A training idler roller assembly as claimed in claim 1 in which the downwardly extending support arrangement is in the form of a downwardly extending yoke (43, 49) having a central upper support
25 pivot arrangement (45, 50) about which the yoke can slew about a generally vertical axis, and a pair of laterally spaced downwardly extending support arms (42) to which the suspension formations of the idler roller unit are attached.
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7. A training idler roller assembly as claimed in claim 6 in which the yoke is of an inverted squat Y-shape supported centrally by a thrust bearing

(50) or the like adapted to support the weight of the yoke, roller and conveyor belt.

8. A training idler roller assembly as claimed in claim 6 in which the yoke is of an inverted U-shape supported centrally of a web of the U-shape (45).
9. A training idler roller assembly as claimed in claim 8 in which an elongate generally horizontal support rod or bar (46) passes through a tubular web portion (44) of the U-shaped yoke with a central pivot (45) being positioned internally within the tubular web portion.
10. A training idler roller assembly as claimed in any one of the preceding claims in which the idler roller unit comprises a single idler roller supported on an axle by way of a bearing (8) at or towards each end of the roller and the free ends of the axle are configured to be supported by a pendulous arm carried by the associated conveyor structure.
11. A training idler roller assembly as claimed in any one of the preceding claims in which the idler roller unit operates on the basis of a drag operated training idler roller.
12. A training idler roller assembly as claimed in claim 11 in which the idler roller has an external surface that tapers downwards towards each end thereof.
13. A training idler roller assembly as claimed in claim 12 in which the external surface of the idler roller tapers towards each end over the entire length of the roller from a central cylindrical band in the outer surface thereof.